

**Table 1a. Aquatic Life, Agriculture, And Public Health Designated Uses Numeric Criteria.**

PARAMETER	CAS NUMBER	Use Category					
		AQUATIC LIFE		AGRICULTURE		PUBLIC HEALTH	
		ACUTE	CHRONIC	LIVESTOCK	IRRIGATION	FOOD PROCUREMENT	DOMESTIC WATER SUPPLY
<b>Chlorinated phenols</b>							
2-chlorophenol	95578	4,380	2,000	a	a	150	81
3-chlorophenol	108430	a	a	a	a	29,000	a
2,4-dichlorophenol	120832	2,020	365	a	a	b 790 <sup>b</sup>	b 93 <sup>b</sup>
3-methyl-4-chlorophenol	59507	30	a	a	a	a	a
2,4,5-trichlorophenol	95954	100	63	a	a	3,600	1,800
2,4,6-trichlorophenol	88062	a	970	a	a	2.4	b 2.1 <sup>b</sup>
<b>F. Phthalate Esters .....</b>							
butylbenzyl phthalate	85687	a	a	a	a	1,900	1,500
dibutyl phthalate (di-n-butyl phthalate)	84742	940	3	a	a	b 4,500	b 2,000
diethyl phthalate	84662	a	a	a	a	b 44,000	17,000
dimethyl phthalate	131113	940	3	a	a	1,100,000	b 270,000
bis[2-(2-ethylhexyl) phthalate (DEHP)	117817	400	360	a	a	b 5.9 <sup>b</sup>	b 1.8 <sup>b</sup>
phthalates, total	a	940	3	a	a	a	a
<b>G. Polynuclear Aromatic Hydrocarbons (PAHs).....</b>							
acenaphthene	83329	1,700	520	a	a	990	670
acenaphthylene	208968	a	a	a	a	0.0311	a
anthracene	120127	a	a	a	a	40,000	b 9,600 <sup>b</sup>
benzo(a)anthracene	56553	a	a	a	a	0.018	b 0.0038
benzo(a)pyrene	50328	a	a	a	a	0.018	b 0.0028 <sup>b</sup>
benzo(b)fluoranthene	205992	a	a	a	a	0.018	b 0.0038
benzo(g,h,i)perylene	191242	a	a	a	a	0.0311	a
benzo(k)fluoranthene	207089	a	a	a	a	0.018	b 0.0038
2-chloronaphthalene	91587	a	a	a	a	1,600	1,000
chrysene	218019	a	a	a	a	0.018	b 0.0038
dibenzo(a,h)anthracene	53703	a	a	a	a	0.018	b 0.0038
fluoranthene	206440	3,980	a	a	a	b 370 <sup>b</sup>	b 300 <sup>b</sup>
fluorene	86737	a	a	a	a	5,300	b 1,300 <sup>b</sup>
indeno(1,2,3-cd)pyrene	193395	a	a	a	a	0.018	b 0.0038
naphthalene	91203	2,300	620	a	a	a	a
phenanthrene	85018	30	6.3	a	a	0.0311	a
pyrene	129000	a	a	a	a	4,000	b 960 <sup>b</sup>
Polynuclear Aromatic Hydrocarbons, total (PAHs)	a	a	a	a	a	0.0311	0.2
<b>H. Miscellaneous Other Organics (Except Pesticides).....</b>							
di(2-ethylhexyl) adipate	103231	a	a	a	a	a	500 400
lisosporone	78591	117,000	a	a	a	b 960	b 35
polychlorinated biphenyls, total (PCBs)	a	2	0.014	a	a	0.000064	b 0.00017 <sup>b</sup>
dioxin (2,3,7,8-TCDD) (dioxin)	1746016	0.01	0.00001	a	a	0.000000006- 5.0E-9	b 1.3E-8 <sup>b</sup>
<b>PESTICIDES (µg/L)</b>							
acrolein	107028	68	21	a	a	290	190
acrylamide	79061	a	a	a	a	a	0.01
alachlor (Lasso)	15972608	760	76	100	a	a	2
aldicarb	116063	a	a	a	a	a	3
aldicarb sulfone	1646884	a	a	a	a	a	2
aldicarb sulfoxide	1646873	a	a	a	a	a	3

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aldrin	<u>309002</u>	3	0.001	1	a	0.00005	b <u>0.00013<sup>b</sup></u>
atrazine (Aatrex)	<u>1912249</u>	170	3	a	a	a	3
bromomethane (methyl bromide)	<u>74839</u>	11,000	a	a	a	1,500	b <u>47</u>
bromoxynil (MCPA)	<u>1689845</u>	a	a	20	a	a	a
carbaryl (Sevin)	<u>63252</u>	a	0.02	100	a	a	a
carbofuran (Furadan)	<u>1563662</u>	a	a	100	a	a	40
chlordane	<u>57749</u>	2.4	0.0043	3	a	0.00081	b <u>0.00057<sup>b</sup></u>
chlorpyrifos	<u>2921882</u>	0.083	0.041	100	a	a	a
2,4-D	<u>94757</u>	a	a	a	a	a	<del>100</del> <u>70</u>
dacthal (DCPA)	<u>1861321</u>	a	14,300	a	a	a	a
dalapon	<u>75990</u>	a	110	a	a	a	200
<b><i>DDT and Metabolites.....</i></b>							
4,4-DDD (p,p-DDD)	<u>72548</u>	a	a	a	a	0.00031	b <u>0.00031</u>
4,4-DDE (p,p-DDE)	<u>72559</u>	1,050	a	a	a	0.00022	b <u>0.00022</u>
DDT, total	<u>50293</u>	1.1	0.001	50	a	<del>0.00024-</del> <u>0.00022</u>	b <u>0.00022</u>
diazinon (spectracide)	<u>333415</u>	a <u>0.17</u>	<del>0.08</del> <u>0.17</u>	100	a	a	a
dibromochloropropane (DBCP)	<u>96128</u>	a	a	a	a	15.7	0.2
1,2-dibromoethane	<u>106934</u>	a	a	a	a	a	0.05
dieldrin	<u>60571</u>	0.24	0.056	1	a	0.000054	b <u>0.00014<sup>b</sup></u>
4,6-dinitro-o-cresol	<u>534521</u>	a	a	a	a	280	b <u>13</u>
dinoseb (DNBP)	<u>88857</u>	a	a	a	a	a	7
diquat	<u>85007</u>	a	a	a	a	a	20
disulfoton (Di-syston)	<u>298044</u>	a	a	100	a	a	a
endosulfan, total	<u>115297</u>	0.22	0.056	a	a	159	b <u>a</u>
alpha-endosulfan	<u>959998</u>	0.22	0.056	a	a	89	62
beta-endosulfan	<u>33213659</u>	0.22	0.056	a	a	89	62
endosulfan sulfate	<u>1031078</u>	a	a	a	a	b <u>89</u>	b <u>62</u>
endothall	<u>145733</u>	a	a	a	a	a	<del>140</del> <u>100</u>
endrin	<u>72208</u>	0.086	0.036	0.5	a	<del>0.84</del> <u>0.060</u>	<del>0.76</del> <u>2</u>
endrin aldehyde	<u>7421934</u>	a	a	a	a	0.3	b <u>0.76<sup>b</sup></u>
epichlorohydrin	<u>106898</u>	a	a	a	a	a	4
ethylene dibromide	<u>106934</u>	a	a	a	a	a	0.05
fenchlorfos (Ronnal)	<u>299843</u>	a	a	100	a	a	a
glyphosate (Roundup)	<u>1071836</u>	a	a	a	a	a	700
guthion	<u>86500</u>	a	0.01	100	a	a	a
heptachlor	<u>76448</u>	0.52	0.0038	0.1	a	0.000079	b <u>0.00021<sup>b</sup></u>
heptachlor epoxide	<u>1024573</u>	0.52	0.0038	0.1	a	b <u>0.00011<sup>b</sup></u>	b <u>0.00010<sup>b</sup></u>
hexachlorocyclohexane (HCH or BHC)	<u>61876</u>	100	a	a	a	0.0414	0.0123
alpha-HCH (alpha-BHC)	<u>319846</u>	100	a	a	a	0.0049	b <u>0.0039<sup>b</sup></u>
beta-HCH (beta-BHC)	<u>319857</u>	100	a	a	a	b <u>0.046<sup>b</sup></u>	b <u>0.014<sup>b</sup></u>
delta-HCH (delta-BHC)	<u>319868</u>	100	a	a	a	a	a
gamma-HCH (gamma-BHC, lindane)	<u>58899</u>	0.95	0.08	5	a	<del>0.0626</del> <u>1.8</u>	b <u>0.2</u>
technical-HCH (technical-BHC)	<u>608731</u>	a	a	a	a	0.0414	a
malathion	<u>121755</u>	a	0.1	100	a	a	a
methoxychlor	<u>72435</u>	a	0.03	1,000	a	a	40
methyl parathion	<u>298000</u>	a	a	100	a	a	a
metribuzin (Sencor)	<u>21087649</u>	a	100	a	a	a	a

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mirex	<u>2385855</u>	a	0.001	a	a	0.000097	a
oxamyl (Vydate)	<u>23135220</u>	a	0.001	a	a	a	200
parathion	<u>56382</u>	0.065	0.013	100	a	a	a
pentachloronitrobenzene	<u>82688</u>	250	50	a	a	a	a
pentachlorophenol (PCP)	<u>87865</u>	table 1b	table 1b	a	a	3	b <u>0.28</u> <sup>b</sup>
picloram (Tordon)	<u>1918021</u>	a	a	a	a	a	500
propachlor (Ramrod)	<u>1918167</u>	a	8	a	a	a	a
simazine (Princep)	<u>122349</u>	a	a	10	a	a	4
2,4,5-T	<u>93765</u>	a	a	2	a	a	a
tributyltin (TBT) oxide	<u>56359</u>	0-149 <u>0.46</u>	0-026 <u>0.072</u>	a	a	a	a
toxaphene	<u>8001352</u>	0.73	0.0002	5	a	0.00028	b <u>0.00073</u> <sup>b</sup>
2,4,5-TP (Silvex)	<u>93721</u>	a	a	a	a	a	49 <u>50</u>

a - Criterion not Not available

b - US EPA has promulgated this criterion for Kansas under the Code of Federal Regulations, Title 40, part 131.36. ~~KDHE has not adopted the criterion into the Kansas Surface Water Quality Standards. Nevertheless, the criterion is still applicable to Kansas.~~

c - Criterion under investigation

d - The Biotic Ligand Model (BLM) as in the "Aquatic Life Ambient Freshwater Quality Criteria-Copper 2007 Revision (EPA-822-R-07-001, February 2007)", which is adopted by reference.

The second and third sentences in b were deleted.

**Table 1b. Hardness-Dependent Aquatic Life Support Criteria.**

Formulae for calculation of hardness-dependent aquatic life support criteria for chromium III and total cadmium, total copper, total lead, total nickel, total silver and total zinc and pH-dependent aquatic life support criteria for pentachlorophenol. A WER value of 1.0 is applied in the hardness-dependent equations for total metals unless a site-specific WER has been determined and adopted by the department in accordance with K.A.R. 28-16-28e(a) and K.A.R. 28-16-28f(f). Hardness values in metal formulae are entered in units of mg/L as CaCO<sub>3</sub>. Pentachlorophenol formulae apply only over the pH range 6.5-8.5.

**CADMIUM (ug/L):**

$$\text{acute criterion} = \text{WER}[\text{EXP}[(1.0166(\text{LN}(\text{hardness}))) - 3.924]]$$

$$\text{chronic criterion} = \text{WER}[\text{EXP}[(0.7409(\text{LN}(\text{hardness}))) - 4.719]]$$

**CHROMIUM III (ug/L):**

$$\text{acute criterion} = \text{WER}[\text{EXP}[(0.819 * (\text{LN}(\text{hardness}))) + 3.7256]]$$

$$\text{chronic criterion} = \text{WER}[\text{EXP}[(0.819 * (\text{LN}(\text{hardness}))) + 0.6848]]$$

**COPPER (ug/L):**

$$\text{acute criterion} = \text{WER}[\text{EXP}[(0.9422 * (\text{LN}(\text{hardness}))) - 1.700]]$$

$$\text{chronic criterion} = \text{WER}[\text{EXP}[(0.8545 * (\text{LN}(\text{hardness}))) - 1.702]]$$

**LEAD (ug/L):**

$$\text{acute criterion} = \text{WER}[\text{EXP}[(1.273 * (\text{LN}(\text{hardness}))) - 1.460]]$$

$$\text{chronic criterion} = \text{WER}[\text{EXP}[(1.273 * (\text{LN}(\text{hardness}))) - 4.705]]$$

**NICKEL (ug/L):**

$$\text{acute criterion} = \text{WER}[\text{EXP}[(0.846 * (\text{LN}(\text{hardness}))) + 2.255]]$$

$$\text{chronic criterion} = \text{WER}[\text{EXP}[(0.846 * (\text{LN}(\text{hardness}))) + 0.0584]]$$

**PENTACHLOROPHENOL (ug/L):**

$$\text{acute criterion} = \text{EXP}[(1.005 * \text{pH}) - 4.830]$$

$$\text{chronic criterion} = \text{EXP}[(1.005 * \text{pH}) - 5.290]$$

**SILVER (ug/L):**

$$\text{acute criterion} = \text{WER}[\text{EXP}[(1.72 * (\text{LN}(\text{hardness}))) - 6.59]]$$

**ZINC (ug/L):**

$$\text{acute criterion} = \text{WER}[\text{EXP}[(0.8473 * (\text{LN}(\text{hardness}))) + 0.884]]$$

$$\text{chronic criterion} = \text{WER}[\text{EXP}[(0.8473 * (\text{LN}(\text{hardness}))) + 0.884]]$$

**Table 1c. pH-Dependent Acute Aquatic Life Criteria For Total Ammonia.**

Total ammonia as N, mg/L

Acute Aquatic Life Criteria for Ammonia, mg/L	
pH	Criteria
6.5	48.8
6.6	46.8
6.7	44.6
6.8	42.0
6.9	39.1
7.0	36.1
7.1	32.8
7.2	29.5
7.3	26.2
7.4	23.0
7.5	19.9
7.6	17.0
7.7	14.4
7.8	12.1
7.9	10.1
8.0	8.40
8.1	6.95
8.2	5.72
8.3	4.71
8.4	3.88
8.5	3.20
8.6	2.65
8.7	2.20
8.8	1.84
8.9	1.56
9.0	1.32

**Table 1d. pH- And Temperature-Dependent Chronic Aquatic Life Criteria For Total Ammonia Early Life Stages Of Fish Present.**

Total ammonia as N, mg/L

Chronic Aquatic Life Criteria for Ammonia, Early Life Stages Present, mg/L										
pH	Temperature, °C									
	0	14	16	18	20	22	24	26	28	30
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

**Table 1e. pH- And Temperature-Dependent Chronic Aquatic Life Criteria For Total Ammonia Early Life Stages Of Fish Absent.**

Total ammonia as N, mg/L.

Chronic Aquatic Life Criteria for Ammonia, Early Life Stages Absent*, mg/L								
pH	Temperature, °C							
	0-7	8	9	10	11	12	13	14**
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89
6.6	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79
6.7	10.5	9.81	9.2	8.62	8.08	7.58	7.11	6.66
6.8	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25
7.4	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89
7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70
7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29
7.9	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89
8.0	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52
8.1	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17
8.2	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85
8.3	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58
8.4	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33
8.5	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13
8.6	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951
8.7	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805
8.8	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684
8.9	0.917	0.860	0.806	0.456	0.709	0.664	0.623	0.584
9.0	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503

\*Early life stage absent criteria will apply to all Kansas surface waters during the months November through February except in surface water segments listed in Table 1f. The application of early life stage absent criteria outside of the months November through February shall require a segment-specific examination of the surface water for the presence of early life stages of fish.

\*\* At 15 °C and above, the criterion for early life stages absent is equivalent to the criterion for early life stages present.

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**Table 1f. Surface Water Segments Where Early Life Stages of Fish Absent Chronic Aquatic Life Criteria Are Not Applicable.**

Surface Water	Basin	Subbasin	Hydrologic Unit Code	Segment Number
Kansas River	Kansas Lower Republican	Lower Kansas	10270104	1
Kansas River	Kansas Lower Republican	Lower Kansas	10270104	2
Kansas River	Kansas Lower Republican	Lower Kansas	10270104	3
Kansas River	Kansas Lower Republican	Lower Kansas	10270104	4
Kansas River	Kansas Lower Republican	Lower Kansas	10270104	5
Kansas River	Kansas Lower Republican	Lower Kansas	10270104	18
Kansas River	Kansas Lower Republican	Lower Kansas	10270104	19
Kansas River	Kansas Lower Republican	Lower Kansas	10270104	21 From Bowersock dam east to segment 19
Missouri River	Missouri	Tarkio-Wolf	10240005	1
Missouri River	Missouri	Tarkio-Wolf	10240005	2
Missouri River	Missouri	Tarkio-Wolf	10240005	19
Missouri River	Missouri	Tarkio-Wolf	10240005	20
Missouri River	Missouri	Tarkio-Wolf	10240005	21
Missouri River	Missouri	Independence-Sugar	10240011	1
Missouri River	Missouri	Independence-Sugar	10240011	2
Missouri River	Missouri	Independence-Sugar	10240011	4
Missouri River	Missouri	Independence-Sugar	10240011	5
Missouri River	Missouri	Independence-Sugar	10240011	7
Missouri River	Missouri	Independence-Sugar	10240011	9
Missouri River	Missouri	Independence-Sugar	10240011	11
Missouri River	Missouri	Independence-Sugar	10240011	13
Missouri River	Missouri	Independence-Sugar	10240011	15
Missouri River	Missouri	Independence-Sugar	10240011	19

**Table 1g. Temperature, Dissolved Oxygen, And pH Numeric Aquatic Life Criteria.**

Aquatic Life Use	Dissolved Oxygen (DO)	pH	Temperature
Special	5.0 mg/L <sup>a</sup>	6.5-8.5 <sup>b</sup>	32°C <sup>c</sup>
Expected	5.0 mg/L <sup>a</sup>	6.5-8.5 <sup>b</sup>	32°C <sup>c</sup>
Restricted	5.0 mg/L <sup>a</sup>	6.5-8.5 <sup>b</sup>	32°C <sup>c</sup>

a - (1) The concentration of dissolved oxygen in surface waters shall not be lowered by the influence of artificial sources of pollution. (2) Dissovled oxygen concentrations can be lower than 5.0 mg/L when caused by documented natural conditions specified in the "Kansas Implementation Procedures: Surface Water Quality Standards". (3) For lakes or reservoirs experiencing thermal stratification, the dissolved oxygen criterion is only applicable to the top layer or epilimnion of the waterbody.

b - pH range outside the zone of initial dilution.

c - (1) Beyond the zone of initial dilution a discharge shall not elevate the temperature of a receiving surface water above this temperature, except as provided in paragraph 28-16-28e(c)(2)(EC)(ii). (2) Additional requirements in paragraph 28-16-28e(c)(2)(C)(i).

Corrected spelling of Dissolved, in a (2).

**Table 1h. Natural Background Concentrations.**

Basin	Waterbody	HUC-8	Segment	Pollutant	Natural Background Concentration
Cimarron	Cimarron River	11040006	1; starting at state line and traveling upstream toward Hayne.	Chloride	1,010 mg/L
Cimarron	Crooked Creek	11040007	1 and 2; starting at state line and traveling upstream to Copeland	Chloride	1,200 mg/L
Cimarron	Stumpie Arroyo	11040007	1247	Chloride	1,200 mg/L
Cimarron	Spring Creek	11040007	3	Chloride	1,200 mg/L
Cimarron	Remuda Creek	11040007	4	Chloride	1,200 mg/L
Cimarron	Cimarron River	11040008	1, 5, 11; starting at confluence with Bluff Creek and traveling upstream to the Oklahoma border.	Sulfate	465 mg/L
Cimarron	Cimarron River	11040008	1, 5, 11; starting at confluence with Bluff Creek and traveling upstream to the Oklahoma border.	Chloride	900 mg/L
Cimarron	Bluff Creek	11040008	2 & 13; starting at confluence with the Cimarron River and traveling upstream toward Minneola.	Sulfate	350 mg/L
Kansas-Lower-Republican	Buffalo Creek	10250017	29 and 37; starting at the confluence with Republican River and traveling upstream to Mankato	Chloride	590 mg/L
Kansas-Lower-Republican	Upper Kansas River	10270704	1, 3, 4, 6 and 7; starting at the confluence with the Big Blue River and traveling upstream to Junction City	Chloride	275 mg/L
Lower Arkansas	Rattlesnake Creek	11030009	1; above the Little Salt Marsh in Quivira National Wildlife Refuge QNWR	Chloride	1,400 mg/L
Lower Arkansas	Rattlesnake Creek	11030009	1; below the Little Salt Marsh in QNWR	Chloride	3,660 mg/L
Lower Arkansas	Rattlesnake Creek	11030009	1; below the Little Salt Marsh in QNWR	Sulfate	455 mg/L
Lower Arkansas	Peace Creek	11030010	6; starting at the confluence with the Arkansas River and traveling upstream to Stafford.	Chloride	1,800 mg/L
Lower Arkansas	Arkansas River	11030013	3, 9, 18; starting at the confluence with Ninnesseh River and ending at the confluence with the Little Arkansas River.	Sulfate	350 mg/L
Lower Arkansas	Slate Creek WA Watershed	11030013	Conservation Pool: Area: 26 acres Maximum Depth: 0.3 meters	Chloride	27,500 mg/L
Lower Arkansas	Slate Creek WA Watershed	11030013	Conservation Pool: Area: 26 acres Maximum Depth: 0.3 meters	Sulfate	2,500 mg/L
Lower Arkansas	Salt Fork Arkansas River	11060002	4, 6, 8, 10, 11, 13, and 15; starting at Kansas/Oklahoma state line and traveling upstream to west-central Comanche County.	Chloride	305 mg/L
Lower Arkansas	Salt Fork Arkansas River	11060002	4, 6, 8, 10, 11, 13, and 15; starting at Kansas/Oklahoma state line and traveling upstream to west-central Comanche County.	Sulfate	730 mg/L
Lower Arkansas	Mule Creek	11060002	7; starting at the confluence with the Salt Fork Arkansas River; Headwaters in South Central Kiowa County.	Sulfate	310 mg/L
Lower Arkansas	Medicine Lodge River	11060003	2; starting at the Oklahoma border and traveling upstream toward the confluence with Elm Creek.	Sulfate	450 mg/L
Lower Arkansas	Medicine Lodge River	11060003	8; starting at the confluence with Turkey Creek; Headwaters near Greensburg, in Kiowa County.	Sulfate	300 mg/L

**Table 1h. Natural Background Concentrations.**

Basin	Waterbody	HUC-8	Segment	Pollutant	Natural Background Concentration
Lower-Arkansas	North Branch, Medicine-Lodge River	11060003	24	Sulfate	300 mg/L
Lower-Arkansas	Thompson-Creek	11060003	26	Sulfate	300 mg/L
Lower-Arkansas	Otter-Creek	11060003	25	Sulfate	300 mg/L
Lower-Arkansas	Soldier-Creek	11060003	27	Sulfate	300 mg/L
Neeshe	Doyle-Creek	11070202	21	Sulfate	370 mg/L
Neeshe	South-Cottonwood-River	11070202	17 and 18	Sulfate	840 mg/L
Neeshe	French-Creek	11070202	16	Sulfate	1,045 mg/L
Neeshe	Clear-Creek	11070202	4 and 5	Sulfate	200 mg/L
Upper-Arkansas	Arkansas-River	11030001	1, 3, 5, 7 & 9 from stateline to small stream E of Garden-City.	Sulfate	1,875 mg/L
Upper-Arkansas	Arkansas-River	11030003	4	Sulfate	350 mg/L
Upper-Arkansas	Arkansas-River	11030004	11	Sulfate	350 mg/L
Upper-Arkansas	Arkansas-River	11030004	10 and 6	Sulfate	550 mg/L
Upper-Arkansas	Arkansas-River	11030004	10; beginning at the confluence of Mulberry-Creek in east-central Ford County and ending at the confluence with Coon-Creek.	Fluoride	1.45 mg/L
Upper-Republican	South-Fork-Republican-River	10250003	2 and 4 (S. Fk. Republican River) starting at the Kansas-Nebraska state line and traveling upstream to southwest Cheyenne County and the Kansas-Colorado stateline.	Fluoride	1.45 mg/L
Upper-Republican	Big-Timber-Cr	10250003	61	Fluoride	1.45 mg/L
Upper-Republican	Delay-Cr	10250003	66	Fluoride	1.45 mg/L
Upper-Republican	Haskberry-Cr	10250003	3	Fluoride	1.45 mg/L
Upper-Republican	Bluff-Cr	10250003	70	Fluoride	1.45 mg/L
Upper-Republican	Valley-Cr	10250003	69	Fluoride	1.45 mg/L
Upper-Republican	Spring-Cr	10250003	67	Fluoride	1.45 mg/L
Upper-Republican	Sand-Cr	10250003	68	Fluoride	1.45 mg/L
Upper-Republican	South-Fork-Republican-River	10250003	6, 7 and 9 (S. Fk. Republican River) starting at the Kansas-Nebraska state line and traveling upstream to southwest Cheyenne County and the Kansas-Colorado stateline.	Fluoride	1.20 mg/L
Upper-Republican	Drury-Cr	10250003	60	Fluoride	1.20 mg/L

**Table 1h. Natural Background Concentrations.**

Basin	Waterbody	HUC 8	Segment	Pollutant	Natural-Background-Concentration
Upper-Republican	Crosby-Cr	10250003	72	Fluoride	1.20 mg/L
Upper-Republican	Battle-Cr	10250003	74	Fluoride	1.20 mg/L
Upper-Republican	Cowpe-Cr	10250003	8	Fluoride	1.20 mg/L
Walnut	Whitewater-River	11030017	18, 10, 21, and 23	Sulfate	300 mg/L
Walnut	Whitewater-River, West Branch	11030017	22	Sulfate	300 mg/L
Walnut	Whitewater-River, East Branch	11030017	24 and 25	Sulfate	300 mg/L
Walnut	Whitewater-Creek	11030017	34	Sulfate	300 mg/L
Walnut	Prairie-Creek	11030017	35	Sulfate	300 mg/L
Walnut	Wildcat-Creek	11030017	26	Sulfate	300 mg/L
Walnut	Sand-Creek	11030017	20	Sulfate	300 mg/L
Walnut	W. Wildcat-Creek	11030017	28	Sulfate	300 mg/L
Walnut	Gypsum-Creek	11030017	30	Sulfate	300 mg/L
Walnut	E. Br. Whitewater-Creek	11030017	31	Sulfate	300 mg/L
Walnut	Walnut-Creek	11030017	44	Sulfate	300 mg/L
Walnut	Fourmile-Creek	11030017	20	Sulfate	300 mg/L
Walnut	Dry-Creek	11030017	32	Sulfate	300 mg/L
Walnut	Henry-Creek	11030017	33	Sulfate	300 mg/L
Walnut	Eightmile-Creek	11030018	30	Sulfate	520 mg/L

**Table 1h. Natural Background Concentrations.**

BASIN	HUC 8	SEGMENT / LAKE NUMBER	WATERBODY	POLLUTANT	NATURAL BACKGROUND CONCENTRATION (mg/L)
Cimarron	11040006	1	Cimarron River	Chloride	1,010
Cimarron	11040007	1	Crooked Creek	Chloride	1,200
Cimarron	11040008	2	Bluff Creek	Sulfate	350
Cimarron	11040008	5	Cimarron River	Chloride	900
Cimarron	11040008	5	Cimarron River	Sulfate	465
Kansas Lower Republican	10250017	29	Buffalo Creek	Chloride	590
Kansas Lower Republican	10270701	6	Kansas River	Chloride	275
Kansas Lower Republican	10270101	6	Kansas River	Sulfate	300
Lower Arkansas	11030009	1	Rattlesnake Creek above the Little Salt Marsh in Quivira National Wildlife <del>Refuge</del> <i>Refuge</i>	Chloride	1,400
Lower Arkansas	11030009	1	Rattlesnake Creek below the Little Salt Marsh in Quivira National Wildlife <del>Refuge</del> <i>Refuge</i>	Chloride	3,660
Lower Arkansas	11030009	1	Rattlesnake Creek above and below the Little Salt Marsh in Quivira National Wildlife <del>Refuge</del> <i>Refuge</i>	Sulfate	455
Lower Arkansas	11030010	1	Arkansas River	Chloride	620
Lower Arkansas	11030010	3	Arkansas River	Chloride	650
Lower Arkansas	11030010	4	Arkansas River	Chloride	650
Lower Arkansas	11030010	6	Peace Creek	Chloride	1,800
Lower Arkansas	11030010	7	Salt Creek	Chloride	1,300
Lower Arkansas	11030011	1	Cow Creek near Willowbrook	Chloride	300
Lower Arkansas	11030011	2	Little Cow Creek	Chloride	300
Lower Arkansas	11030011	3	Cow Creek near Lyons	Chloride	460
Lower Arkansas	11030011	1755	Cow Creek	Chloride	300
Lower Arkansas	11030013	1	Arkansas River	Chloride	345
Lower Arkansas	11030013	2	Arkansas River	Chloride	265
Lower Arkansas	11030013	3	Arkansas River	Chloride	385
Lower Arkansas	11030013	3	Arkansas River	Sulfate	350
Lower Arkansas	11030013	LM014201	Slate Creek W.A. Watershed	Chloride	27,590
Lower Arkansas	11030013	LM014201	Slate Creek W.A. Watershed	Sulfate	2,500
Lower Arkansas	11030015	3	Ninnescha River, South Folk	Chloride	265

*Corrected the word Refuge in Rattlesnake Creek entries.*

**Table 1h. Natural Background Concentrations.**

BASIN	HUC 8	SEGMENT / LAKE NUMBER	WATERBODY	POLLUTANT	NATURAL BACKGROUND CONCENTRATION (mg/L)
Lower Arkansas	11060002	4	Arkansas River, Salt Folk	Chloride	305
Lower Arkansas	11060002	4	Arkansas River, Salt Folk	Sulfate	730
Lower Arkansas	11060002	7	Mule Creek	Sulfate	310
Lower Arkansas	11060003	2	Medicine Lodge River	Sulfate	450
Lower Arkansas	11060003	6	Medicine Lodge River	Sulfate	525
Lower Arkansas	11060003	8	Medicine Lodge River	Sulfate	300
Lower Arkansas	11060003	27	Soldier Creek	Sulfate	300
Neosho	11070202	5	Clear Creek	Sulfate	290
Neosho	11070202	16	French Creek	Sulfate	1,045
Neosho	11070202	17	Cottonwood River, South	Sulfate	840
Neosho	11070202	21	Doyle Creek	Sulfate	370
Neosho	11070205	LM035901	Mined Land Lake 12	Sulfate	1,000
Neosho	11070205	LM036801	Mined Land Lake 22	Sulfate	1,000
Neosho	11070205	LM036901	Mined Land Lake 23	Sulfate	1,000
Neosho	11070205	LM037301	Mined Land Lake 27	Sulfate	1,000
Neosho	11070205	LM037601	Mined Land Lake 30	Sulfate	1,000
Neosho	11070205	LM038841	Mined Land Lake W.A.	Sulfate	1,000
Neosho	11070205	LM048201	Mined Land Lake 17	Sulfate	1,000
Neosho	11070205	LM048401	Mined Land Lake 44	Sulfate	1,000
Neosho	11070207	LM047601	Mined Land Lake 6	Sulfate	1,000
Neosho	11070207	LM047801	Mined Land Lake 7	Sulfate	1,000
Smoky Hill-Saline	10260003	9	Smoky Hill River	Sulfate	500
Smoky Hill-Saline	10260003	17	Smoky Hill River	Sulfate	700
Smoky Hill-Saline	10260003	21	Smoky Hill River	Sulfate	700
Smoky Hill-Saline	10260003	LM013001	Cedar Bluff Lake	Sulfate	452
Smoky Hill-Saline	10260006	5	Smoky Hill River	Chloride	435
Smoky Hill-Saline	10260006	9	Smoky Hill River	Chloride	625
Smoky Hill-Saline	10260006	15	Smoky Hill River	Chloride	820
Smoky Hill-Saline	10260006	15	Smoky Hill River	Sulfate	411
Smoky Hill-Saline	10260006	21	Smoky Hill River	Sulfate	464
Smoky Hill-Saline	10260008	3	Chapman Creek	Sulfate	370

**Table 1h. Natural Background Concentrations.**

BASIN	HUC 8	SEGMENT / LAKE NUMBER	WATERBODY	POLLUTANT	NATURAL BACKGROUND CONCENTRATION (mg/L)
Smoky Hill-Saline	10260008	6	Smoky Hill River	Chloride	265
Smoky Hill-Saline	10260008	6	Smoky Hill River	Sulfate	325
Smoky Hill-Saline	10260008	8	Mud Creek	Sulfate	400
Smoky Hill-Saline	10260008	18	Gypsum Creek	Sulfate	325
Smoky Hill-Saline	10260008	25	Holland Creek	Sulfate	1,200
Smoky Hill-Saline	10260008	28	Turkey Creek	Sulfate	1,200
Smoky Hill-Saline	10260008	35	Carry Creek	Sulfate	400
Smoky Hill-Saline	10260009	5	Paradise Creek	Chloride	860
Smoky Hill-Saline	10260009	5	Paradise Creek	Sulfate	630
Smoky Hill-Saline	10260009	8	Saline River	Chloride	860
Smoky Hill-Saline	10260009	8	Saline River	Sulfate	500 or 780 *
Smoky Hill-Saline	10260009	9	Saline River	Sulfate	390
Smoky Hill-Saline	10260009	LM014001	Wilson Lake	Chloride	680
Smoky Hill-Saline	10260009	LM014001	Wilson Lake	Sulfate	480
Smoky Hill-Saline	10260010	1	Saline River	Chloride	300
Smoky Hill-Saline	10260010	1	Saline River	Sulfate	375
Smoky Hill-Saline	10260010	3	Saline River	Chloride	370
Smoky Hill-Saline	10260010	3	Saline River	Sulfate	390
Smoky Hill-Saline	10260010	10	Wolf Creek	Chloride	390
Smoky Hill-Saline	10260010	10	Wolf Creek	Selenium	7**
Smoky Hill-Saline	10260010	10	Wolf Creek	Sulfate	450
Smoky Hill-Saline	10260010	14	Bullfoot Creek	Sulfate	300
Smoky Hill-Saline	10260010	17	Elkhorn Creek	Sulfate	425
Solomon	10260012	2	Oak Creek	Selenium	12
Solomon	10260012	10	Beaver Creek	Selenium	16
Solomon	10260012	23	Deer Creek	Selenium	9
Solomon	10260014	18	Kill Creek	Selenium	9

**Table 1h. Natural Background Concentrations.**

BASIN	HUC 8	SEGMENT / LAKE NUMBER	WATERBODY	POLLUTANT	NATURAL BACKGROUND CONCENTRATION (mg/L)
Solomon	10260014	18	Kill Creek	Sulfate	540
Solomon	10260014	19	Covert Creek	Selenium	6
Solomon	10260014	19	Covert Creek	Sulfate	610
Solomon	10260014	20	Twin Creek	Selenium	12
Solomon	10260014	20	Twin Creek	Sulfate	730
Solomon	10260014	21	Carr Creek	Selenium	8
Solomon	10260014	21	Carr Creek	Sulfate	690
Solomon	10260015	1	Solomon River	Chloride	370
Solomon	10260015	12	Solomon River	Chloride	400
Solomon	10260015	18	Limestone Creek	Selenium	6.6
Solomon	10260015	18	Limestone Creek	Sulfate	300 **
Solomon	10260015	27	Salt Creek	Chloride	650
Solomon	10260015	27	Salt Creek	Sulfate	310
Upper Arkansas	11030001	1	Arkansas River	Sulfate	1,875
Upper Arkansas	11030001	3	Arkansas River	Selenium	7 or 10 ***
Upper Arkansas	11030001	9	Arkansas River	Selenium	7 or 10 ***
Upper Arkansas	11030003	1	Arkansas River	Selenium	7 or 10 ***
Upper Arkansas	11030003	1	Arkansas River	Sulfate	350
Upper Arkansas	11030004	1	Arkansas River	Sulfate	1,000
Upper Arkansas	11030004	10	Arkansas River	Fluoride	1.45
Upper Arkansas	11030004	10	Arkansas River	Sulfate	550
Upper Arkansas	11030004	11	Arkansas River	Sulfate	350
Upper Republican	10250001	1	Arikaree River	Selenium	9
Upper Republican	10250003	2	Republican River, South Fork	Fluoride	1.45
Upper Republican	10250003	9	Republican River, South Fork	Fluoride	1.20
Walnut	11030017	18	Whitewater River	Sulfate	390
Walnut	11030018	30	Eightmile Creek	Sulfate	520

\* 780 mg/L applies when stream flows are above the normal flow

\*\* Only applies when stream flows are above the median (50 percentile) flow

\*\*\* From April to October, 7 mg/L applies; from ~~November~~ to March, 10 mg/L applies.

*November*

**Table 1i. *Escherichia coli* Criteria For Classified Stream Segments.**

Use	Colony Forming Units (CFUs)/100mL	
Primary Contact Recreation	Geometric Mean <i>Apr.</i> April 1 – Oct. 31	Geometric Mean <i>Mar.</i> Nov. 1 – March 31
	Class A	160
	Class B	262
	Class C	427
Secondary Contact Recreation	Geometric Mean Jan. 1 – Dec. 31	
	Class a	
	Class b	

**Table 1j. *Escherichia coli* Criteria For Classified Surface Waters Other Than Classified Stream Segments.**

Use	Colony Forming Units (CFUs)/100mL			
Primary Contact Recreation	Geometric Mean <i>Apr.</i> April 1 – Oct. 31	Geometric Mean <i>Mar.</i> Nov. 1 – March 31	Single Sample Maximum <i>Apr.</i> April 1 – Oct. 31	Single Sample Maximum <i>Mar.</i> Nov. 1 – March 31
	Swimming Beach	160	800	732
	Public Access	262	1310	1198
	Restricted Access	427	2135	1950
Secondary Contact Recreation	Geometric Mean Jan. 1 – Dec. 31		Single Sample Maximum Jan. 1 – Dec. 31	
	Public Access		2135	
	Restricted Access		2135	

*Since all other months were abbreviated, we abbreviated Apr. + Mar. as well.*

**Table 1k. Chlorophyll-a Criteria For Lakes Or Reservoirs With Active<sup>a</sup> Or Reserve<sup>b</sup> Domestic Water Supply Use.**

	Lakes or Reservoirs with Domestic Water Supply Use
Chlorophyll-a	The lesser value <sup>c</sup> of 10 µg/L or long-term average <sup>d</sup>

a. These lakes or reservoirs are currently being used as domestic water supply sources.

b. These lakes or reservoirs are not currently being used as domestic or public water supply ~~sources~~<sup>SOURCES</sup>, but they are listed as backup supplies by municipalities and other public water suppliers, or the active water rights for water supply uses are still being held by the municipalities and other public water suppliers.

c. With an exception for Cheney Lake, the criterion for Cheney Lake is set at the action level of 11 µg/L according to "A Comparative Water Quality Study of Cheney Reservoir, Kansas" by Smith et al, 2001.

d. Running average of a minimum of 4 samples over a 12-year period. For any lake or reservoir with insufficient data, the criterion is set at 10 µg/L until a long-term average can be calculated, and the new criterion will be the lesser value of 10 µg/L or the long-term average.

*Corrected the word sources, in (b).*

**Table 11. Current Lakes Or Reservoirs Serving As Active Or Reserve Domestic Water Supply.**

Lake Number	Register Name (with Local Name)
LM050001	Alma City Lake
LM040001	Augusta City Lake
LM041601	Augusta Santa Fe Lake
LM032001	Banner Creek Lake
LM031001	Big Hill Lake (Pearson-Skubitz Big Hill Lake)
LM046401	Blue Mound City Lake
LM043901	Bone Creek Lake
LM046201	Bronson City Lake
LM072601	Caney City Lake (Timber Hill Lake)
LM013001	Cedar Bluff Lake
LM044101	Cedar Creek Reservoir
LM040701	Cedar Valley Lake
LM073701	Centralia Lake
LM017001	Cheney Lake
LM030001	Clinton Lake
LM043001	Council Grove City Lake
LM022001	Council Grove Lake
LM051301	Critzler Lake
LM064901	Crystal Lake <sup>b</sup> Deleted superscript b
LM071701	Edna City Lake
LM033001	El Dorado Lake
LM025001	Elk City Lake
LM040201	Eureka Lake (Eureka Old City Lake)
LM023001	Fall River Lake
LM045001	Fort Scott City Lake
LM040401	Gardner City Lake
LM040601	Garnet North City Lake
LM040801	Harveyville Lake (Harveyville City Lake)
LM069701	Herington City Lake
LM047201	Herington Reservoir
LM035001	Hillsdale Lake
LM073901	Jetmore Lake
LM026001	John Redmond Lake
LM016001	Kanopolis Lake
LM043401	Lake Kahola
LM041201	Lebo City Lake
LM044301	Linn Valley Lake
LM065701	Louisburg Old Lake
LM043801	Louisburg SFL (Louisburg Middle Creek SFL)
LM065901	Lyndon City Lake
LM051801	Madison City Lake

**Table 11. Current Lakes Or Reservoirs Serving As Active Or Reserve Domestic Water Supply.**

<b>Lake Number</b>	<b>Register Name (with Local Name)</b>
LM020001	Marion Lake
LM027001	Melvern Lake
LM019001	Milford Lake
LM051001	Miola Lake (Lake Miola)
LM013601	Mission Lake
LM071901	Moline Reservoir
LM051401	Mound City Lake
LM048701	Murray Gill Lake (Quivira Boy Scout Lake)
LM049901	New Alma City Lake
LM061301	New Olathe Lake
LM053801	New Yates Center Lake (Yates Center Reservoir)
LM010001	Norton Lake (Sebelius Lake)
LM066101	Osage City Reservoir
LM053901	Otis Creek Lake (Eureka)
LM066301	Parker City Lake
LM041401	Parsons Lake
LM029001	Perry Lake
LM044201	Pleasanton Reservoir (Pleasanton City Lake East)
LM012701	Polk Daniels Lake (Elk Co. SFL)
LM028001	Pomona Lake
LM073001	Pony Creek Lake
LM061901	Prairie Lake
LM066601	Prescott City Lake
LM022501	Quarry Lake
LM046801	Richmond City Lake
LM011501	Sabetha City Lake
LM072001	Sedan City South Lake
LM072101	Severy City Lake
LM073501	Spring Hill City Lake
LM051201	Strowbridge Reservoir (Carbondale East Lake)
LM049601	Thayer New City Lake
LM069101	Timber Lake
LM024001	Toronto Lake
LM021001	Tuttle Creek Lake
LM042001	Wabaunsee Co. Lake
LM018001	Waconda Lake
LM042201	Wellington Lake (Wellington Old City Lake)
LM042301	Wellington New City Lake
LM050801	Winfield City Lake
LM074401	Xenia Lake
LM069201	Yates Center Reservoir (South Owl Lake)

